Ballast Water and Hull Fouling Limits in EPA's Vessel General Permit

Presentation for Pacific Ballast Water Group

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United States Environmental Protection Agency

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2013 Final VGP – Overview

- Effective December 19, 2013
  - 2008 VGP 5 year permit term expired
- Jurisdiction of the permit
  - Inland waters, territorial sea up to 3 nautical miles (nm)
- Discharge coverage
  - 27 discharge types incidental to the normal operation of a non-recreational and non military vessels 79 feet or longer, except commercial fishing vessels, and all ballast water discharges, regardless of size
  - Additional vessel class-specific conditions for 8 classes of vessels
- Certain vessel discharges not eligible for coverage (e.g., sewage)
- Vessel Operators must submit a 2013 VGP Notice of Intent for coverage

Ballast Water Approach

- Ballast water requirements primarily found in Part 2.2.3 of the VGP
  - Mandatory Management measures
  - Numeric Limits
  - Interim Requirements
  - Specific requirements for vessels entering the Great Lakes

Ballast Water - Mandatory Management Measures

- Section 2.2.3.1-2.2.3.4
- Ballast water management plan
- Applicable to all vessels to reduce risk from ballast water discharges
  - e.g., must use pumps when ballasting or deballasting when feasible if not using a ballast water treatment system

Ballast Water – Numeric Effluent Limits

- Section 2.2.3.5: Expressed as instantaneous maxima

Large Organisms (> 50µm)	Small Organisms (>10µ and ≤50 µm)			
		Toxigenic *Vibrio cholerae* (O1 & O139)	*Eschericia coli*	Intestinal enterococci
< 10 per m^3	< 10 per ml	<1 cfu per 100 ml	<250 cfu per 100 ml	<100 cfu per 100 ml

Ballast Water – Implementation

- Four possible options to meet limits:
  - Use a treatment device (e.g. U.S. type approved system or an AMS)
  - Use onshore treatment
  - Use public water supply water (from US and Canada only)
  - No discharge
- Implementation schedule:

	Vessel's Ballast Water Capacity	Date Constructed	Vessel's Compliance Date
New vessels		After December 1, 2013	On delivery
Existing vessels	Less than 1500 m^3	Before December 1, 2013	First scheduled drydocking after January 1, 2016
	1500-5000 m^3	Before December 1, 2013	First scheduled drydocking after January 1, 2014
	Greater than 5000 m^3	Before December 1, 2013	First scheduled drydocking after January 1, 2016

Ballast Water – Interim Requirements

- Interim requirements must be met until numeric limits apply
  - Requirements fundamentally the same as the 2008 VGP
- Interim requirements include:
  - Incorporating existing U.S. Coast Guard mandatory management and exchange requirements
  - Mandatory saltwater flushing for all vessels with residual ballast water and sediment (NOBOBs) coming from outside the USEEZ and 200 nm from shore
  - Mandatory exchange and flushing for vessels engaged in Pacific nearshore voyages
  - Conducting exchange as early as practicable

Ballast Water - Monitoring

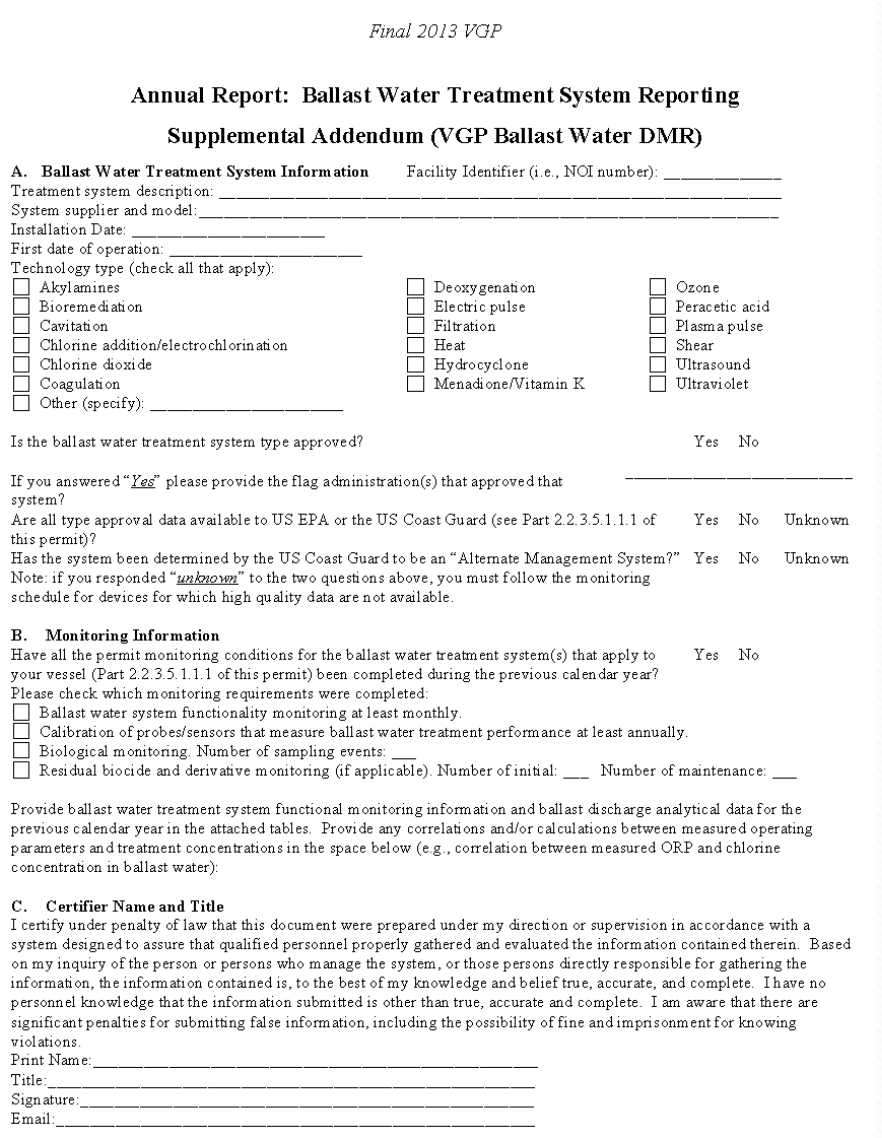
- Monitoring requirements if using a treatment device
  - **Functional**
    - Goal is to test if the system functioning as designed (e.g., applying chlorine dose, filtering water)
  - **Biological**
    - *E. coli*, enterococci, and total heterotrophic bacteria
  - **Active substance and residuals** (for systems that use them)
    - Numeric limits for systems using chlorine, chlorine dioxide, ozone, and peracetic acid

Ballast Water: Additional WQ based requirement

- Certain vessels entering the Great Lakes must conduct ballast water exchange/saltwater flushing in addition to treatment if they have taken on ballast from freshwater or brackish water ecosystems within the previous month
- Estimated to impact fewer than 200 vessels per year

Reporting and Recordkeeping

- Notice of Intent
  - Includes vessel specific ballast water information about the vessels seeking permit coverage
- Annual Report
  - Ballast water data submitted via annual report
  - Electronic system for data submittal and management
- EPA will make data submitted to the Agency in electronic form available to the public in electronic form
  - e.g., see searchable feature of NOIs currently available for the 2008 VGP



Final 2013 VGP

Annual Report: Ballast Water Treatment System Reporting

Supplemental Addendum (VGP Ballast Water DMR)

A. Ballast Water Treatment System Information Facility Identifier (i.e., NOI number): _____

Treatment system description: _____

System supplier and model: _____

Installation Date: _____

First date of operation: _____

Technology type (check all that apply):

☐ Akylamines	☐ Deoxygenation	☐ Ozone
☐ Bioremediation	☐ Electric pulse	☐ Peracetic acid
☐ Cavitation	☐ Filtration	☐ Plasma pulse
☐ Chlorine addition/electrochlorination	☐ Heat	☐ Shear
☐ Chlorine dioxide	☐ Hydrocyclone	☐ Ultrasound
☐ Coagulation	☐ Menadione/Vitamin K	☐ Ultraviolet
☐ Other (specify): _____		

Is the ballast water treatment system type approved? Yes No

If you answered "*Yes*" please provide the flag administration(s) that approved that system? _____

Are all type approval data available to US EPA or the US Coast Guard (see Part 2.2.3.5.1.1.1 of this permit)? Yes No Unknown

Has the system been determined by the US Coast Guard to be an "Alternate Management System?" Yes No Unknown

Note: if you responded "*unknown*" to the two questions above, you must follow the monitoring schedule for devices for which high quality data are not available.

B. Monitoring Information

Have all the permit monitoring conditions for the ballast water treatment system(s) that apply to your vessel (Part 2.2.3.5.1.1.1 of this permit) been completed during the previous calendar year? Yes No

Please check which monitoring requirements were completed:

☐ Ballast water system functionality monitoring at least monthly.

☐ Calibration of probes/sensors that measure ballast water treatment performance at least annually.

☐ Biological monitoring. Number of sampling events: ___

☐ Residual biocide and derivative monitoring (if applicable). Number of initial: ___ Number of maintenance: ___

Provide ballast water treatment system functional monitoring information and ballast discharge analytical data for the previous calendar year in the attached tables. Provide any correlations and/or calculations between measured operating parameters and treatment concentrations in the space below (e.g., correlation between measured ORP and chlorine concentration in ballast water):

C. Certifier Name and Title

I certify under penalty of law that this document were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information contained therein. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information contained is, to the best of my knowledge and belief true, accurate, and complete. I have no personnel knowledge that the information submitted is other than true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print Name: _____

Title: _____

Signature: _____

Email: _____

Ballast Water DMR Data

- 41,000+ vessels submitted annual reports

EPA Enforcement Response Policy

- As EPA & USCG work to ensure that we are as consistent as possible under our respective statutory authorities, on December 27, 2013 EPA issued an Enforcement Response Policy (ERP).
- The ERP states that vessels that do not meet the VGP's numeric ballast water limits and have received an extension from the USCG and are otherwise in compliance with all other VGP requirements, including submission of a valid NOI, are considered a low enforcement priority.
- EPA and the USCG developed a joint package that is sent to vessel owners / operators that have received an extension from the USCG.
  - This package includes the USCG extension, the ERP and a joint cover letter signed by both Agencies.

State Water Quality Certifications

- Under Section 401 of the Clean Water Act, States have the right to add additional requirements to any U.S. Federal permit

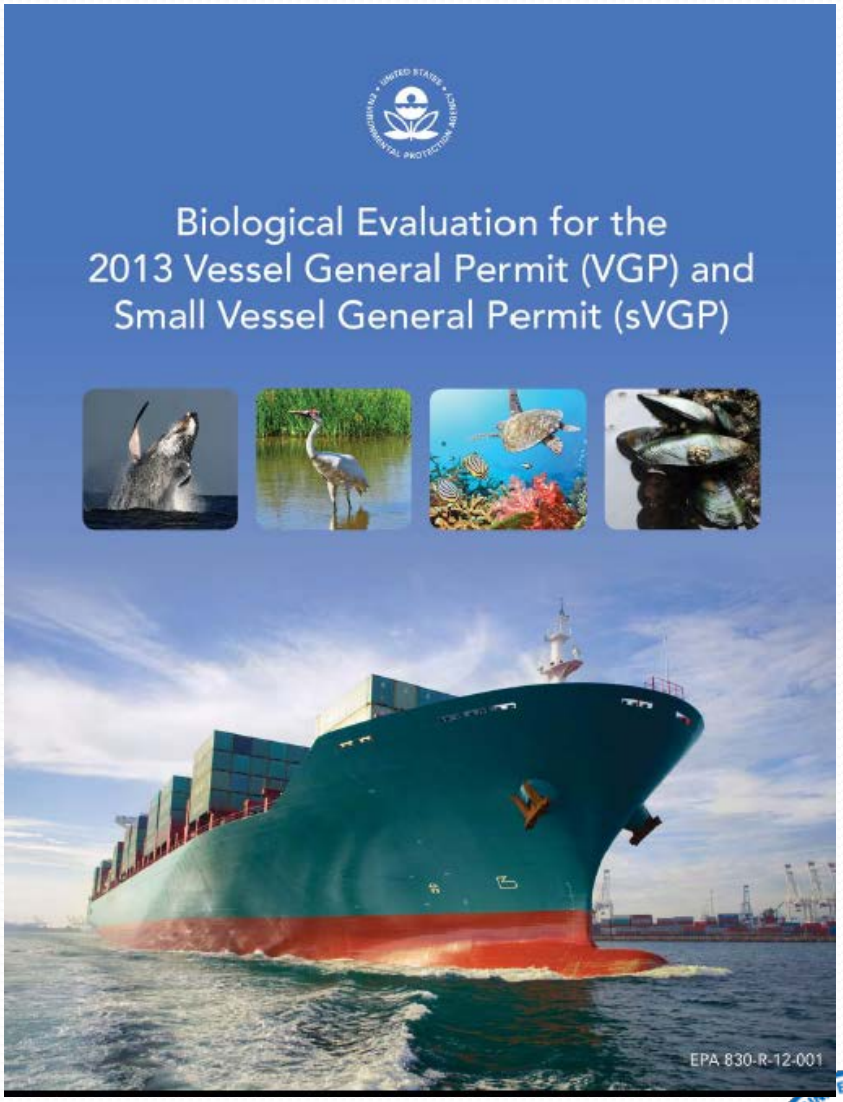
- Most states certified EPA numeric BW limit, except:
  - California – "no detectable living organisms"

- Some States have additional requirements applicable to underwater ship husbandry and hull fouling within their State waters (e.g., additional limitations on underwater ship husbandry)
  - States include California and Maine

- See Part 6 of the VGP for State conditions

Biofouling

- Hull fouling identified as one of the primary vectors for Aquatic Nuisance Species (ANS) introduction



Biofouling – Permit Requirements

- Hull Fouling regulated under 3 discharge types in the VGP
  - Anti-foulant Hull Coatings
  - Cathodic Protection
  - Underwater Ship Husbandry (Primary Section)

Biofouling – Permit requirements

- Vessel operators must minimize hull fouling when not engaged in short distance voyages (from Underwater Ship Husbandry requirements):
  - Management measures to minimize the transport of attached living organisms include:
    - Selecting an appropriate anti-foulant management system and maintaining that system,
    - Conducting an in-water inspection,
    - Cleaning and maintenance of hulls, and
    - Thorough hull and other niche area cleaning when a vessel is in drydock.
  - Specified management measures consistent with IMO guidelines
- When feasible, flush-fit sacrifical anodes to the hull or fill the space between the anode and hull backing (From Cathodic Protection requirements)

Biofouling - Available Data

- Hull fouling data is now available through the eNOI database, should agencies/researchers choose to use it in their analyses

- eNOI Search tool on the Vessels Discharge Homepage

Exchange + Treatment Study

- Naval Research Laboratory
- 2 tanks with BW treatment
- 2 tanks with open water exchange + BW treatment
  - At least 50 nm from shore (ideally 200 nm)
- Multiple vessels, multiple trials per vessel

Efficacy of Ballast Water BMPs

- Sediment uptake – Lake Michigan
  - Simulated ballast water uptake from high and low sea chests in order to compare rates of sediment uptake
- Deballasting mortality – Lake Superior
  - Simulated pumped and gravity drained ballast discharge and compared mortality rates of larval fish and fish eggs in drained water

Questions?

- General VGP questions
  - VGP@epa.gov
  - www.epa.gov/npdes/vessels
- eNOI questions
  - VGPeNOI@epa.gov
  - www.epa.gov/npdes/vessels/enoi
- Webinars
  - EPA has held 4 webinars on the 2013 VGP
  - The archived presentations are available at www.epa.gov/npdes/vessels
- Frequently Asked Questions (FAQs)
- Sampling How-To Reference for 2013 VGP